

REMARKS

Claims 1-6 are all the claims pending in the application. This Response, submitted in reply to the Office Action dated May 15, 2008, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

Claims Rejections

Ogawa, Marchini, and Hitotsuyanagi References

Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ogawa et al. (U.S. 6,461,459; henceforth “Ogawa”) taken in view of Marchini et al. (U.S. 6,702,913; henceforth “Marchini”) and Hitotsuyanagi et al. (U.S. 2002/0046796; henceforth “Hitotsuyanagi”). Applicant respectfully traverses this rejection.

Arguments from Amendment

In the Amendment filed on February 13, 2008, Applicant argued that Ogawa does not teach or even suggest specific control of the rotation of the drum about the tire’s rotational axis from minimum to maximum velocities relative to a fixed lateral movement speed as recited in claim 1. Further, Applicant argued that Marchini teaches a relative angular rotation is realized by either actuating a strip laying unit relative to the toroidal support or rotating the toroidal support about an axis of correction Y-Y (which is perpendicular to the rotational axis of the tire), and does not teach varying the rotational speed of the toroidal support about the rotational axis of the tire as recited in claim 1. Applicant also argued that Hitotsuyanagi also does not cure these deficiencies of Ogawa and Marchini because it does not teach gradually and continuously varying the drum rotational speed from a minimum value to a maximum value because Fig. 3 clearly shows the intermediate region have inclined straight parallel lines indicating the drum’s

rotational speed was constant in this region. Further, Applicant argued that the manner of variation of the forming drum is substantially different because it is designed to apply ply-cords to a simple cylindrical drum surface and not a crowned drum portion as described in the present claims. For these reasons, Applicant argued that a person of ordinary skill in the art would not be motivated to use the inventive principles of Marchini or Hitotsuyanagi in the method/apparatus of Ogawa.

Examiner's Response

In response to these arguments, the Examiner acknowledges that Marchini does not teach the strip applying methodology claimed or even the methodology taught in Ogawa. However, the Examiner asserts that Marchini and Ogawa both teach forming a tire belt with successively applied strips. The Examiner also asserts that Marchini identifies that for a crowned drum, the length of the circumference at the equatorial plane will be longer than the length of the circumference at the lateral edges and it is therefore impossible to advantageously adjoin one another at both the equatorial plane and the lateral edges. The Examiner also asserts that Marchini solves this problem and that combined with Ogawa make it obvious to control the speeds relative to one another to yield the angle variation shown in Marchini. In other words, the Examiner asserts that Marchini does not teach the application method claimed but generally teaches varying the angular path of each strip which would have been understood as applying to belt strips of a crowned drum or any other tire belt formed by successive application of strips regardless of the specific application process.

With respect to Hitotsuyanagi, the Examiner also asserts that this reference makes it obvious to control the drum of Ogawa during rotation to be at a maximum rotational velocity at the center of the tire width and smaller at the edges in order to form the cord path suggested by

Marchini. Applicant respectfully submits that the Examiner has misconstrued the applied references.

Applicant's Response

Ogawa does not teach the specific control of the rotation of the drum to gradually and continuously vary from a minimum to a maximum velocity relative to a fixed lateral movement speed as claimed. In other words, Ogawa teaches continuously attaching strips from one axial end of the drum to another axial end of the drum, but does not teach gradually and continuously varying the angular velocity of the drum as claimed.

Conversely, Marchini teaches that applying the strips from one axial end of the tire to the other axial end of the tire (as is taught in Ogawa), while rotating the tire about its rotational axis, can cause gaps to be formed between adjacent strips resulting in non-homogeneity in the reinforcing structure. *See* Col. 2 line 66-Col. 3, line 2. Therefore, Marchini instead teaches that to guarantee perfect structural homogeneity in the reinforcing structure there must be a relative rotation brought about between the toroidal support and the reinforcing strip, about the axis of correction Y-Y (which is shown in Figs. 3 and 4 to correspond not with the rotational axis of the tire, but the radial axis of the tire). *See* Col. 3, lines 3-17. In other words, Marchini teaches that to generate homogeneity in the reinforcing structure, the reinforcing strip must be rotated about the radial axis of the toroidal support. Marchini also teaches that strips should be applied from the center of the tire's width outward to the axial ends and not from one axial end to the other axial end if non-homogeneity is to be avoided.

Applicant submits that the Marchini and Ogawa references teach dramatically different methods of manufacturing the reinforcing structure of the tire. Ogawa teaches applying strips from one axial end to the other axial end while rotating the tire about its rotational axis of the

tire, while Marchini teaches applying strips from the center of the tire's width outward to the axial ends while rotating the tire about its radial axis (not rotational axis). Further, Marchini teaches that the method used in Ogawa is flawed and must be replaced with the entirely different method taught in Marchini. Therefore, Applicant submits that a person of ordinary skill in the art would not apply the teachings of Marchini to Ogawa, but would instead simply adopt the method taught by Marchini (i.e. generating a rotation about the tire's radial axis and applying the strips from the center of the tire's width outward to the axial ends). Therefore, Applicant submits that a person of ordinary skill in the art would not combine the teachings of Marchini and Ogawa as asserted by the Examiner.

Further, in Marchini et al., the toroidal support 3 on which the strip-like segments 5 are applied is rotated about its axis X-X (Fig. 5) of rotation (column 7, lines 64-67) by a predetermined angular pitch. This incremental rotation of the toroidal support 3 is carried out to bring the toroidal support 3 to a rotational position adapted to receive a new strip-like segment 5 adjacent to an old strip-like segment 5 which has already been applied to the toroidal support 3. For this reason, the incremental rotation of the toroidal support 3 is an "indexing" rotation, which is not equivalent to the controlled-speed rotation of the forming drum, as recited in the present claims, for the purpose of successively arranging strips so that adjacent strips are in properly adjoining disposition. Further, it should be noted that, Marchini et al. uses relative rotation between the strip-like segment 5 and the toroidal support 3 about an axis Y-Y (Fig.5) extending radially of the toroidal support 3 to position adjoining strips. This is quite different from the specific controlled-speed rotation of the forming drum of the present invention.

Further, with respect to the Hitotsuyanagi reference, Applicant submits that Hitotsuyanagi teaches applying a reinforcing cord to a toroidal support having a cylindrical shape and not a crowned shape. Further, Applicant submits that Hitotsuyanagi teaches applying the cords at an angle by rotating the toroidal support at **a constant rotational velocity**, but does not teach varying the chords angle by **continuously varying the rotational velocity** of the toroidal support as recited in the present independent claims 1 and 4.

While it is true that to go from a dead stop to “a constant rotation velocity” a brief acceleration must be applied in Hitotsuyanagi, this acceleration is not a controlled change of velocity as recited in claims 1 and 4, but an uncontrolled velocity change which must be carried out to start the constant velocity rotation of the drum. The same is true for the deceleration from the constant rotational velocity to a dead stop which must also occur. Therefore, Applicant submits that the Examiner’s assertion that Hitotsuyanagi teaches varying the angles by continuously varying the speed of the drum during the traverse of the feed device is improper.

Applicant further points out that the apparatus and method of Hitotsuyanagi are directed to applying ply cords to the rotation drum, whereas the method and apparatus of the present invention are directed to application of strips. Furthermore, the object of the invention of Hitotsuyanagi is to realize changes of the disposition angle of the ply cords halfway in a widthwise direction to realize a predetermined bending angle, whereas the object of the invention of this application is to successively arrange strips so that adjacent strips are in properly adjoining disposition. Therefore, Applicant submits that the teaching of Hitotsuyanagi cannot be a motivation of the present invention.

For the above discussed reasons, Applicant submits that independent claims 1 and 4 are patentable over the applied references. Applicant further submits that dependant claims 2, 3, 5,

and 6 recite additional unique features which are not taught or even suggested in the references applied by the Examiner. Therefore, Applicant submits that these claims are also patentable for these additional reasons.

Ohkubo Reference

Claims 1-6 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Ohkubo (U.S. 2003/0024627). Applicant respectfully traverses this rejection.

MPEP 2131 states “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Applicant submits that Ohkubo does not teach “each and every element as set forth” in independent claims 1 and 4.

Specifically, claim 1 recites “controlling the rotation of the forming drum such that the angular velocity of the forming drum varies **gradually and continuously** from a minimum angular velocity ...to a maximum angular velocity ...and from the maximum angular velocity to a minimum angular velocity...”. Similarly, claim 4 recites “a controller connected to the strip feed device driving motor and the drum driving motor, the controller is controlling the strip feed device driving motor and the drum driving motor such that angular velocity of the forming drum varies **gradually and continuously from a minimum angular velocity ...to a maximum angular velocity ... and from the maximum angular velocity to a minimum angular velocity...**”

Ohkubo does not teach gradually and continuously varying the angular velocity of a forming drum as described in claims 1 and 4, but instead shows maintaining **a constant angular**

velocity for a period, then changing to **a second constant velocity**, then changing back to the **original constant angular velocity**. Therefore, Applicant submits that Ohkubo does not anticipate at least this feature of claims 1 and 4. Further, Applicant also submits that Ohkubo also does not teach the specific features recited in claims 2, 3, 5 and 6. Therefore, Applicant submits that these claims are also not anticipated by Ohkubo.

With respect to the rejection claims 1-6 as alternatively being obvious in light of the teachings of Ohkubo, Applicants submit that Ohkumbo cannot be used as a reference under 35 U.S.C. § 103(a). Ohkumbo was published on **February 6, 2003**, which is after **December 25, 2002**, the filing date of JP 2002-373540 (a certified copy and verified translation of which have been previously filed) from which the present application claim priority. As such, neither 35 U.S.C. § 102(a) or 102(b) apply and Ohkumbo is only available as a reference as of its filing date under 35 U.S.C. §102(e).

Under 35 U.S.C. §103(c):

Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under [§103] where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Since the present invention (Reel 016887, Frame 0279, Date recorded August 2, 2005) and Ohkumbo (Reel 013170, Frame 0528, Date recorded 10/11/2002) were commonly owned by BRIDGESTONE CORPORATION at the time of the making of the present invention, Ohkumo is not available as prior art under §103(c).

Due to the filing date of the instant application, August 2, 2005, the instant application is an application to which the newly amended 35 U.S.C. §103(c) applies. As to the methods for

fulfilling the evidence requirements relating to ownership, see the discussion by the USPTO on its website at “<http://www.uspto.gov/web/offices/dcom/olia/aipa/infoexch.htm>”.

BRIDGESTONE CORPORATION is the assignee of Ohkumbo and is also the assignee of the above-captioned U.S. Application No. 10/540,552. The undersigned hereby represents that Ohkumbo and the claimed invention were, at the time the invention of the instant application was made, owned or subject to an obligation of assignment to BRIDGESTONE CORPORATION.

In view of the above, Applicant respectfully submits that Ohkumbo is not available as art under 35 U.S.C. §103 and it is requested that the rejection under 35 U.S.C. §103(a) be reconsidered and withdrawn.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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